IN THE CLAIMS

1. **(canceled)**

2. **(canceled)**

3. **(previously amended)** A method for measuring an indication of attributes of materials containing a fluid state, the method comprising the steps of:
   a. providing a time-domain signal indicative of attributes of said materials in a single event measurement;
   b. constructing a time-domain averaged data train from said signal, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different; and
   c. computing an indication of attributes of said materials from the time-domain averaged data train.

4. **(currently amended)** The method of claim 3 wherein the following expression is used to construct the time-domain averaged data train <u>within a Δ_i time interval</u>:

$\cancel{S_\Delta(t) = \int_t^{t+\Delta} dt' S(t')/\Delta}$ $\underline{S_{\Delta_i} = \int_t^{t+\Delta_i} dt' S(t')/\Delta_i}$, where $S(t)$ is the provided time-domain signal.

5. **(currently amended)** The method of claim 3, wherein ~~the interval Δ_i is variable and~~ <u>a portion of</u> the time-domain averaged data train is constructed at times $\cancel{t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta.}$ $\underline{t = t_0, t_0 + \Delta_i, t_0 + 2\Delta_i, \ldots, t_0 + N\Delta_i.}$

6. **(previously amended)** The method of claim 3, wherein the time-domain signal is an NMR echo train.

7. **(original)** The method of claim 6, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

8. **(currently amended)** The method of claim 7, wherein the T_2 distribution is estimated using the following expression $\underline{S_\Delta(t) = \sum_{T_2} \phi(T_2) \exp(-t/T_2)(1 - \exp(-\Delta/T_2)) + Noise}$

$\underline{S_{\Delta_i}(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta_i/T_2)) + Noise}$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

9. (previously amended) The method of claim 3 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

10. (canceled)

11. (canceled)

12. (previously amended) A method for measuring an indication of attributes of materials containing a fluid state, comprising the steps of:

a. providing an NMR echo-train indicative of attributes of materials along the borehole;
b. constructing a single event time-domain averaged data train from said NMR echo train, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different; and
c. computing an indication of attributes of said materials from the time-domain averaged data train.

13. (previously amended) The method of claim 12 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

14. (currently amended) The method of claim 12 wherein the following expression is used to construct the time-domain averaged data train: $\cancel{Echo_{\Delta}(t) = \int_t^{t+\Delta} dt' Echo(t')/\Delta}$

$\underline{Echo_{\Delta_i}(t) = \int_t^{t+\Delta_i} dt' Echo(t')/\Delta_i}$, where $Echo(t)$ is the provided time-domain signal over a time interval Δ_i.

15. (currently amended) The method of claim 12, wherein ~~the interval Δ_i is variable and~~ <u>a portion of</u> the time-domain averaged data train is constructed at times $\cancel{t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta.}$ $\underline{t = t_0, t_0 + \Delta_i, t_0 + 2\Delta_i, \ldots, t_0 + N\Delta_i.}$

16. **(original)** The method of claim 15, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

17. **(currently amended)** The method of claim 16, wherein the T_2 distribution is estimated using the following expression ~~$Echo_{\Delta}(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1 - \exp(-\Delta/T_2)) + Noise$~~ $\underline{Echo_{\Delta_i}(t) = \sum_{T_2} \phi(T_2)\exp(-t/T_2)(1 - \exp(-\Delta_i/T_2)) + Noise}$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

18. **(canceled)**

19. **(canceled)**

20. **(previously amended)** A method for increasing the spatial resolution of NMR logging measurements, comprising the steps of:

   a. providing an NMR echo-train indicative of attributes of materials of interest; and

   b. constructing a single event time-domain averaged data train from said NMR echo train, the averaging being performed over two or more time intervals Δ_i, wherein at least two of said two or more time intervals Δ_i are different.

21. **(previously amended)** The method of claim 20 further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.

22. **(currently amended)** The method of claim 20 wherein the following expression is used to construct the time-domain averaged data train: ~~$Echo_{\Delta}(t) = \int_t^{t+\Delta} dt' Echo(t')/\Delta$~~

$\underline{Echo_{\Delta_i}(t) = \int_t^{t+\Delta_i} dt' Echo(t')/\Delta_i}$, where $Echo(t)$ is the provided time-domain signal.

23. **(currently amended)** The method of claim 20, wherein ~~the interval Δ_i is variable and~~ <u>a portion of</u> the time-domain averaged data train is constructed at times ~~$t = t_0, t_0 + \Delta, t_0 + 2\Delta, \ldots, t_0 + N\Delta$.~~ $\underline{t = t_0, t_0 + \Delta_i, t_0 + 2\Delta_i, \ldots, t_0 + N\Delta_i}$.

24. (original) The method of claim 23, wherein the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T_2 domain.

25. (currently amended) The method of claim 24 wherein the T_2 distribution is estimated using the following expression $\underline{Echo_{\Delta}(t)=\sum_{T_2}\phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta/T_2))+Noise}$ $\underline{Echo_{\Delta_i}(t)=\sum_{T_2}\phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta_i/T_2))+Noise}$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

26. (previously amended) A method for real-time processing of NMR logging signals, comprising the steps of:

a. providing real-time data corresponding to a single-event NMR echo train indicative of physical properties of materials of interest;

b. constructing a time-domain averaged data train from said NMR echo train, the averaging being performed over variable time interval Δ using the expression $S_{\Delta}(t)=\int_{t}^{t+\Delta}dt' S(t')/\Delta$, where $S(t)$ is the provided measurement signal, and the time-domain averaged data train is constructed at times $t=t_0,t_0+\Delta,t_0+2\Delta,\ldots,t_0+N\Delta$; and

c. computing in real time an indication of the physical properties of said materials based on the constructed time-domain averaged data train.

27. (original) The method of claim 26, further comprising the step of: inverting of the constructed time-domain averaged data train into the T_2 domain, wherein the T_2 distribution is modeled using the expression $Echo_{\Delta}(t)=\sum_{T_2}\phi(T_2)\exp(-t/T_2)(1-\exp(-\Delta/T_2))+Noise$, where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2.

28. (original) The method of claim 26, further comprising the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement.